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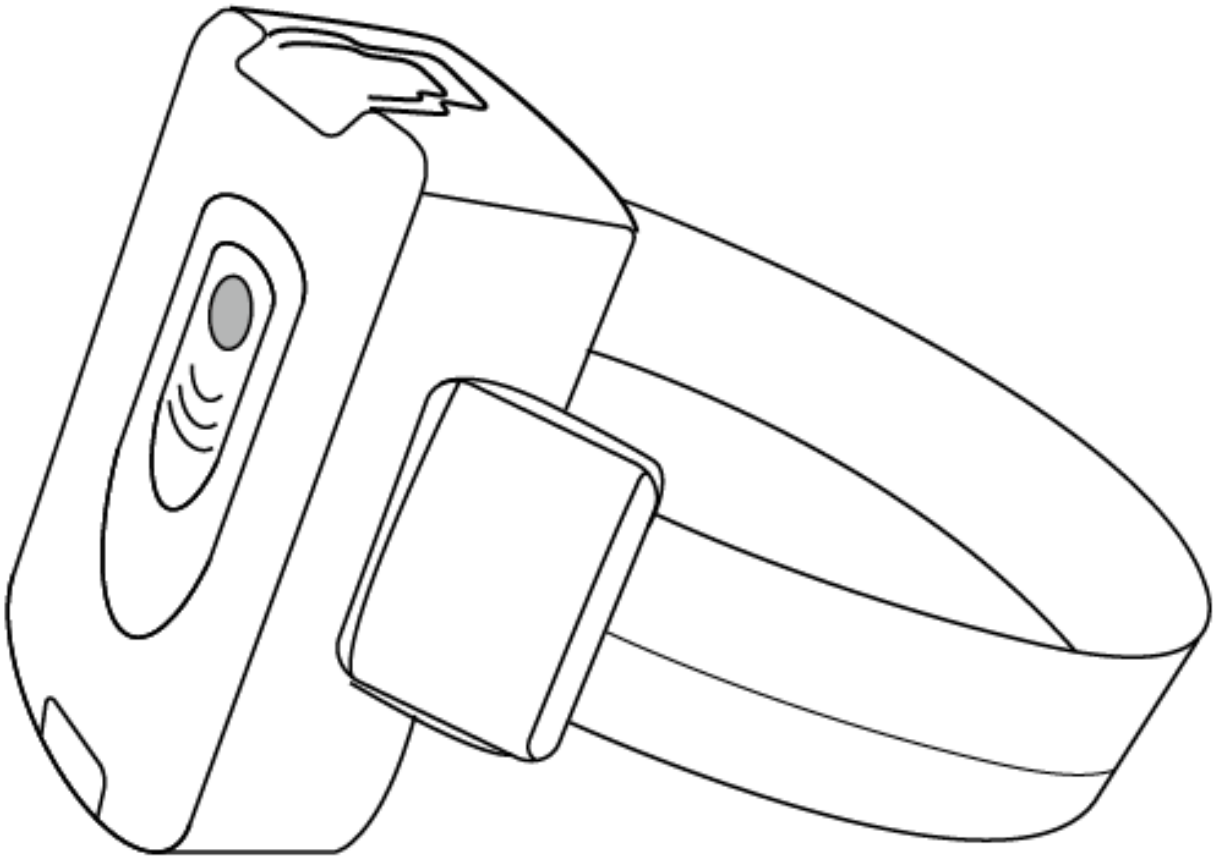

# G737IC User Manual

V1.1

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# ATTENTION!

Do not disassemble the device. Do not touch before unplugging the power supply if the device is damaged.
All wireless data transferring devices produce interference that may affect other devices which are placed nearby.
The device may be deployed only by qualified individuals.
The device must be firmly fastened in the predefined location.

# LEGAL NOTICE

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# CHANGE LOG

| Date | Version | Remark | Person |
|---|---|---|---|
| 2014-03-28 | 1.0 | First release | zexin |
| 2014-04-22 | 1.1 | Chapter 6 added | zexin |

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# 1. SPECIFICATIONS

◆ Main Unit

| Item | Parameter |
|---|---|
| **Operating Voltage** | 3.7VDC, Built-In 2200mAh Lithium cell |
| **Charging Voltage** | 4.5VDC to 5.5VDC, 800mA |
| **Power Consumption** | Maximum 60mA, Minimum 60uA |
| **Working Temperature** | -20 to 60 degree Celsius |
| **GPS Module** | AMX-6G |
| **GSM Module** | BGS2-W |
| **3 Axis Sensor** | LIS3DH |
| **MCU** | EFM32GG330FX |
| **Vibrator** | Yes |
| **2.4G RF** | nRF24L01+ |
| **SPI Flash** | W25Q64CV, 64Mbits |

◆ Tag

| Item | Parameter |
|---|---|
| **Operating Voltage** | 3.0VDC, Removable, EL123 battery*3 |
| **Power Consumption** | Maximum 25mA, Minimum 5uA |
| **Working Temperature** | -40 to 60 degree Celsius |
| **Wireless Valid radius** | 60 meters in plain area |
| **LED Indicator** | Red, transmission indicator |
| **Motion Sensor** | Yes |
| **MCU** | PIC18F24K20 |
| **Flash** | 16KB |
| **2.4G RF** | nRF24L01+ |

◆ Charger

| Item | Parameter |
|---|---|
| **Input Voltage** | 100VAC to 240VAC |
| **Output Voltage** | 5VDC, 1000mA |
| **Working Temperature** | 0 to 40 degree Celsius |

◆ USB receiver

| Item | Parameter |
|---|---|
| **Connectivity** | USB 2.0 |
| **Wireless valid radius** | 3 to 5 meters |

# 2. PACKING

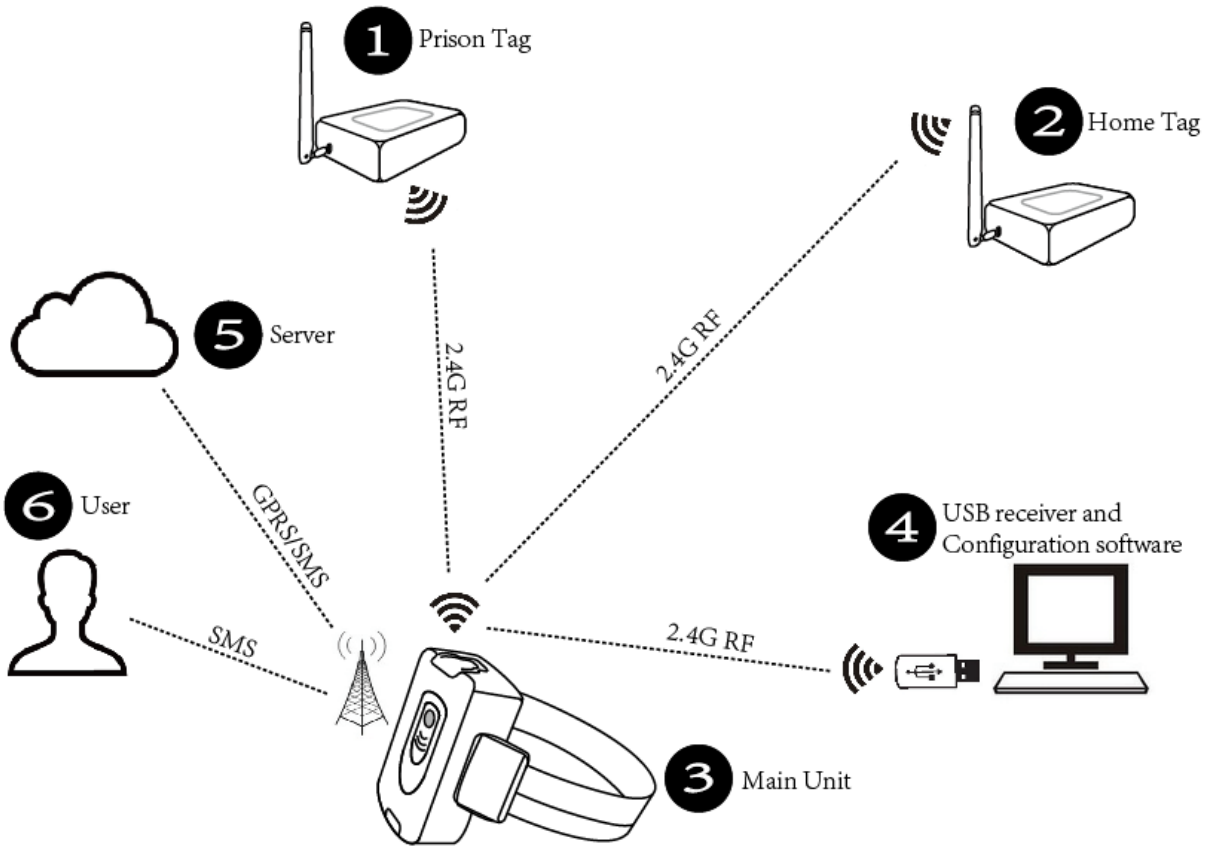
| Item | Remark |
|---|---|
| Main Unit*1 | With built-in rechargeable battery |
| Home Tag*1 | With battery*3 |
| Prison Tag*1 | With battery*3 |
| USB stick*1 | To support wireless configuration for Main Unit and Tag |
| Optical fiber strap*1 | 40cm length |
| Strap locker*2 | To lock strap with Main Unit |

# 3. FEATURE

- IP67, MILSTD810/SAE J1455
- Configure Main Unit, Home Tag and Prison Tag wirelessly
- Shift between Duo SIM cards automatically when preset conditions being met
- Shift among 5 user profiles when preset conditions being met
- Up to 156 Geo-fences
- Up to pair 125 Home Tags and 125 Prison Tags with Main Unit
- Firmware OTA via GPRS channel
- GSM Jamming detection
- Body gesture detection and motion detection based on 3 axis acceleration sensor
- Fiber strap status detection and voltage monitoring
- Notification via built-in motor
- Various event report via SMS/GPRS/Motor vibration mode

| Event Name | Status0 | Status1 |
|---|---|---|
| ✓ Rest | Rest To Moving | Moving To rest |
| ✓ GSM Jamming | Jamming To Normal | Normal To jamming |
| ✓ Geo-Fence | | ✓ |
| ✓ GPS TFTF | | ✓ |
| ✓ Fiber strap disconnected | | ✓ |
| ✓ SOS | | ✓ |
| ✓ Tag moving | | ✓ |
| ✓ Tag low voltage | | ✓ |
| ✓ Device low voltage | | ✓ |
| ✓ Device under voltage | | ✓ |
| ✓ Tag zone entering | | ✓ |
| ✓ Tag zone leaving | | ✓ |
| ✓ SIM card balance notification | | ✓ |

# 4. OVERVIEW




**① Prison Tag**

- It is supposed to be fixed and it will broadcasting its ID and status periodically to Main Unit
- It has built-in motion sensor to trigger moving event broadcasting to Main Unit
- Its RSSI/broadcasting interval/motion sensitivity are definable

**② Home Tag**

- It is supposed to be fixed and it will broadcasting its ID and status periodically to Main Unit
- It has built-in motion sensor to trigger moving event broadcasting to Main Unit
- Its RSSI/broadcasting interval/motion sensitivity are definable

**③ Main Unit**

- It is sensitive with broadcasting message from Tag to monitor “Tag zone entering” and “Tag zone leaving” events
- It is able to report its position periodically and various events via SMS channel and GPRS channel

**④ USB receiver and configuration software**

- By using USB receiver and G737IC configuration software, it is able to set up and control Main Unit and Tag wirelessly

**⑤ Server**

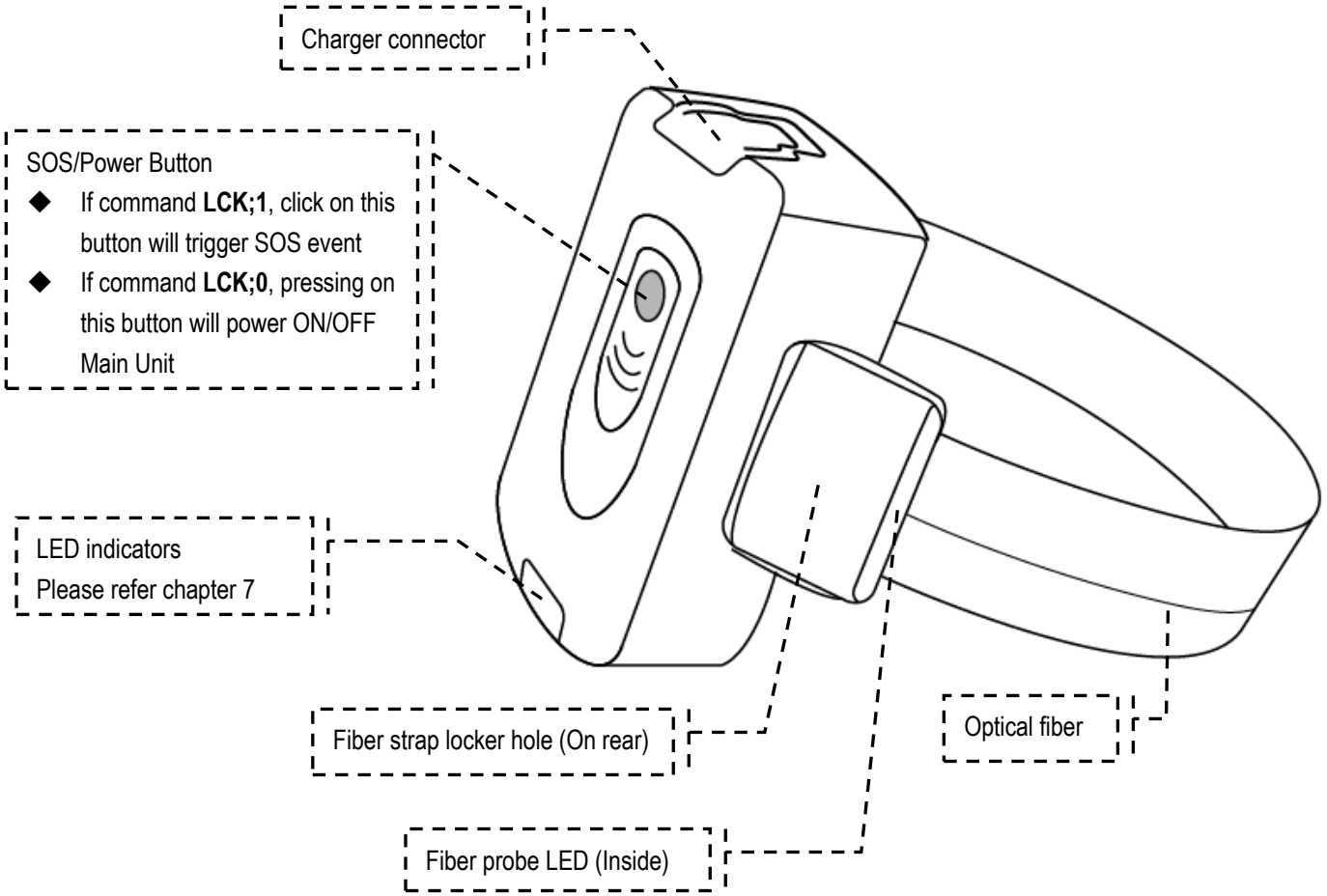
- GPRS and SMS server

**⑥ User**

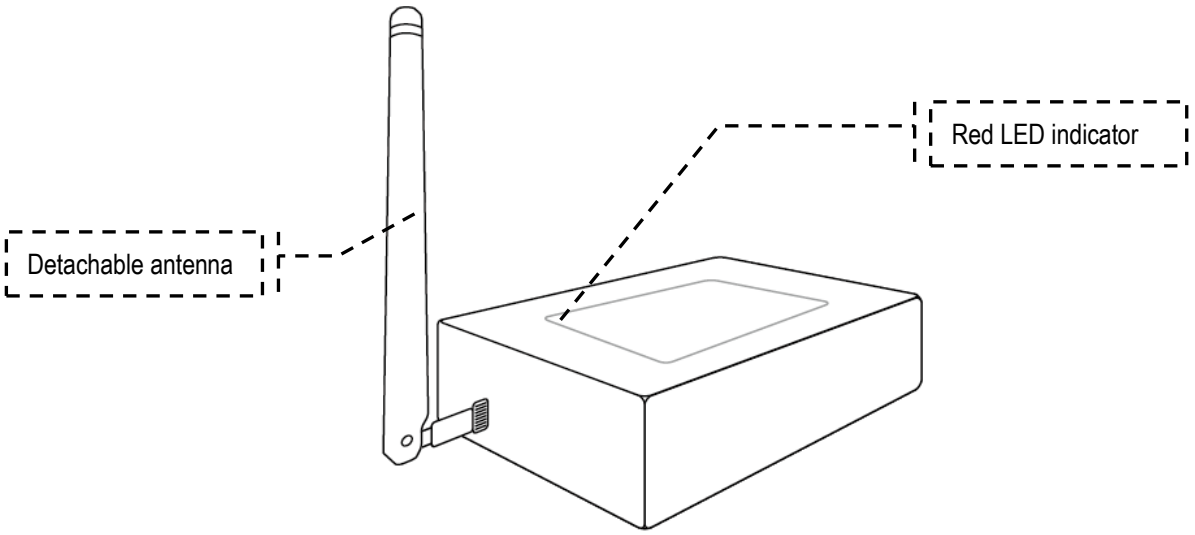
- 2 User phone numbers are available to receive position report and event report from Main Unit

# 5. INTRODUCTION

◆ Main Unit

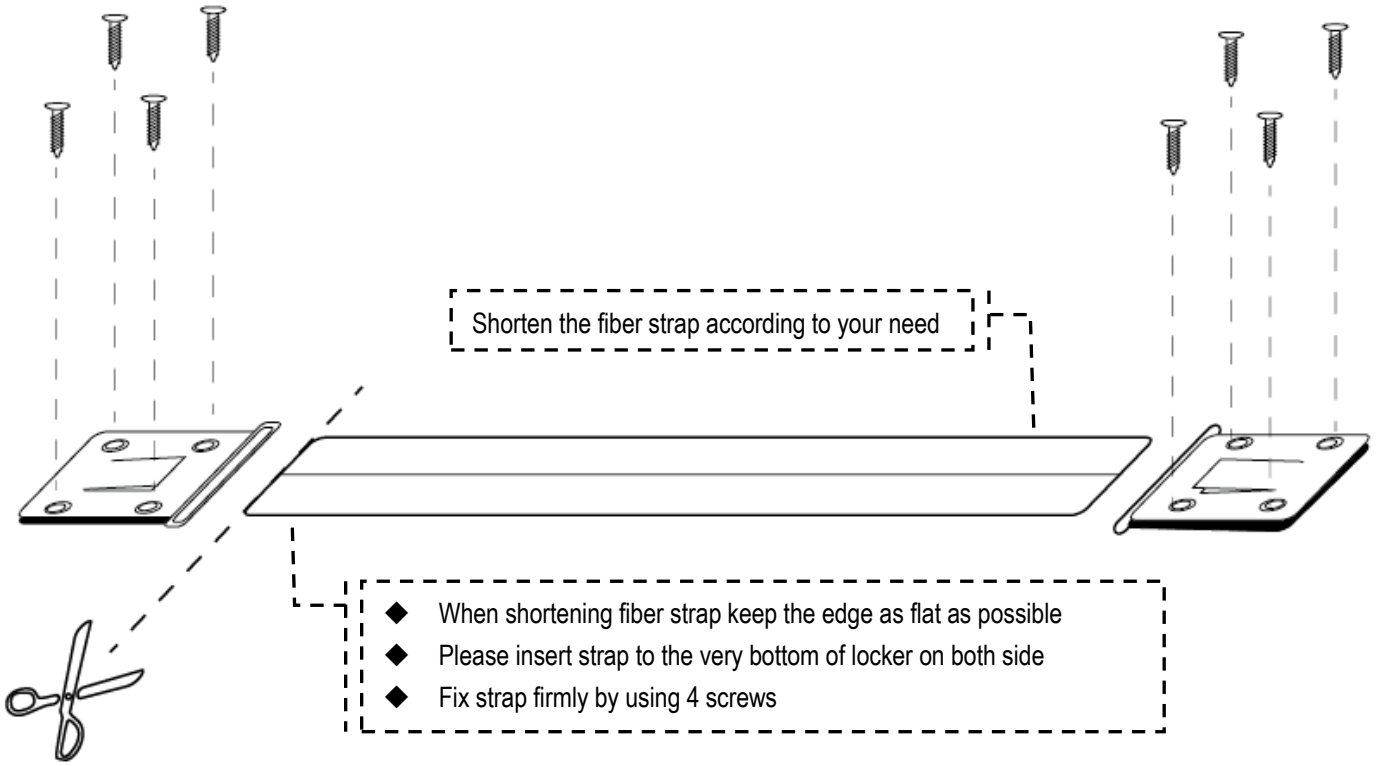



◆ Home/Prison Tag

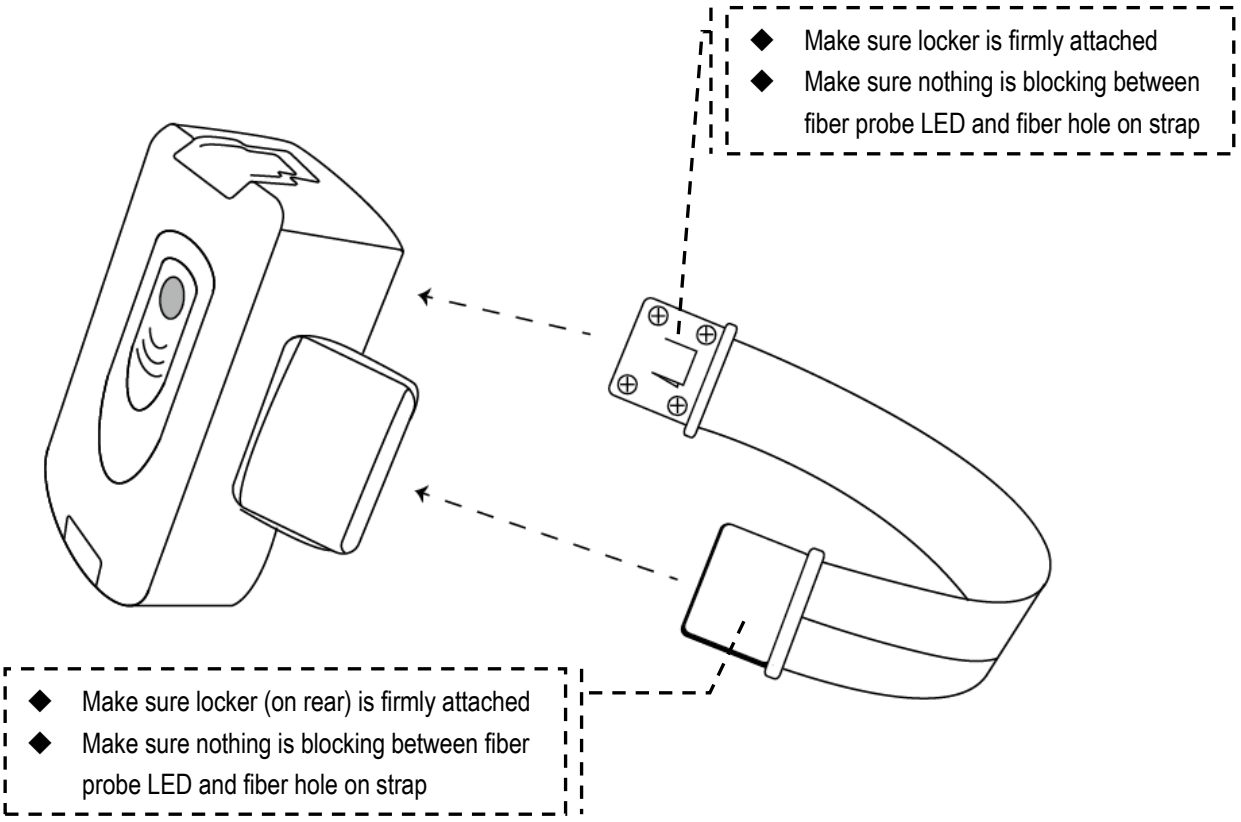


# 6. INSTALLATION

◆ Assemble strap




◆ Attach to Main Unit



# 7. LED INDICATOR

◆ **GSM LED: GREEN**

Server socket connected: Flash once quickly every 5 seconds

GSM network registered: Flash twice quickly in a row every 5 seconds

GSM network unregistered: Flash 3 times quickly in a row every 5 seconds

SIM card error: Flash 4 times quickly in a row every 5 seconds

Serial link communication error: Flash 5 times quickly in a row every 5 seconds

GSM module OFF: Never flash



◆ **GPS LED: YELLOW**

GPS fixed: Flash once quickly every 5 seconds

GPS unfixed: Flash twice quickly in a row every 5 seconds

GPS communication error: Flash 3 times quickly in a row every 5 seconds

GSM module OFF: Never flash



◆ **Power LED: RED**

Under “Lock” status

Battery normal: Flash once quickly every 5 seconds

Battery under voltage: Flash twice quickly in a row every 5 seconds

Battery low voltage: Flash 3 times quickly in a row every 5 seconds

Charging battery: Glowing constantly

Under “Unlock” status

Flash once quickly every 1 second

# 8. USER COMMAND

◆ Set User Phone Number

There are 2 users phone supported by G6S, they have the same authorization.

User1's command words are ***UNO0, UPW0, USP0***.

User2's command words are ***UNO1, UPW1, USP1***.

Below will take user1 as example:

To set your cell phone number as User1 to control and receive messages from device, please send ***UNO*** command to the device, e.g.:

**1234,UNO0;+8613912345678**

Or

**1234,UNO0;13912345678**

Explanations:

**1234**: Default password.

**UNO0**: Command control word for setting user number.

**+8613912345678**: Phone number with country code.

**13912345678**: Phone number without country code.

Device is supposed to reply a confirmation SMS to you, if the device does not accept the command, it also reply **Command err**.

◆ Modify User Password

Factory default password **1234**

Changing the factory password at the first usage is highly suggested.

New password should be 4 digits that from number "0-9".

To modify password, send ***UPW*** command from your USER phone number, e.g.:

**1234,UPW0;5678**

Explanations:

**1234**: Factory Password

**UPW0**: Command control word for setting new password

**5678**: New Password

◆ Set position report interval to user phone

Device is able to report its current position periodically according to the setting, default is every 30 minutes. To change it please send ***USP*** command, e.g.:

**1234,USP0;0;30S;G;W**

Explanations:

**1234**: User password

**USP0**: Command control word

**0**: Interval Mode, related with dynamic report condition

*0: Mode0*

*1: Mode1*

**30S**: Report interval

*S: Second, range from 30 to 900.*

*M: Minute, range from 15 to 59.*

*H: Hour, range from 1 to 240.*

**G**: Working mode

*O: Disable periodically report to USER.*

*G: GPS location information as first priority, if it is invalid, will be replaced by LBS information.*

*S: Using LBS information only.*

*L: Device will voice call USER periodically for voice monitoring purpose.*

**W**: Location information type

*T: Text for current location, showing GPS coordinate.*

*W: Google map hyper link for current location.*

# 9. EVENT SMS SAMPLE

- This table shows some events report sample via SMS
- Please note event name in SMS is definable by command **RNM**

| Event Name | Contents | Remark |
|---|---|---|
| Rest event | G737IC V0.48<br>LTM 2014-03-26 13:28:14<br>MCC/MNC/LAC/CID/RSSI<br>460/0/2503/962C/-70dBm<br>460/0/2731/40F3/-75dBm<br>ETD:0/rest<br>GSM -67dBm<br>BAT=3.94V<br>#11 | |
| SOS event | G737IC V0.48<br>LTM 2014-03-26 13:45:20<br>GPS 1.25/53/6/182<br>N23.164842<br>E113.428752<br>SPD:0km/h 0<br>ETD:5/sos<br>GSM -67dBm<br>BAT=3.93V<br>#19 | |
| Fiber strap event | G737IC V0.48<br>LTM 2014-03-26 13:34:49<br>GPS 1.86/57/5/182<br>N23.164730<br>E113.428768<br>SPD:0km/h 0<br>ETD:4/FO_CUT<br>GSM -52dBm | |

| | | |
|---|---|---|
| | BAT=3.94V<br>#14 | |
| Tag zone entering | G737IC V0.48<br>LTM 2014-03-26 14:25:23<br>MCC/MNC/LAC/CID/RSSI<br>460/0/2503/962C/-73dBm<br>460/0/2731/40F4/-74dBm<br>ETD:10/TAG in/H;10.11.12.13.14<br>GSM -67dBm<br>BAT=3.91V<br>#32 | |
| Tag zone leaving | G737IC V0.48<br>LTM 2014-03-26 14:25:23<br>MCC/MNC/LAC/CID/RSSI<br>460/0/2503/962C/-73dBm<br>460/0/2731/40F4/-74dBm<br>ETD:10/TAG out/H;10.11.12.13.14<br>GSM -67dBm<br>BAT=3.91V<br>#32 | |
| Main Unit battery low | G737IC V0.48<br>LTM 2014-03-26 14:31:09<br>MCC/MNC/LAC/CID/RSSI<br>460/0/2503/962C/-71dBm<br>460/0/2731/40F3/-78dBm<br>460/0/2731/40F4/-78dBm<br>ETD:8/bat low/3.80V<br>GSM -67dBm<br>BAT=3.80V<br>#34 | |
| Tag battery low | G737IC V0.48<br>LTM 2014-03-26 14:03:43<br>GPS 1.34/56/5/78<br>N23.163938<br>E113.428334<br>SPD:0km/h 0<br>ETD:7/TAG Plow/H;10.11.12.13.14;30<br>GSM -52dBm<br>BAT=3.93V<br>#26 | |

#END